

Application No. 10/827,046

IN THE CLAIMS:

1. (Currently Amended) An ink stick for use in a solid ink feed system of a phase change ink jet printer, the ink stick comprising:

an ink stick body having a first perimeter shape;

wherein the first perimeter shape comprises at least first, second, and third perimeter segments;

wherein the first and second perimeter segments intersect one another at a first corner, forming a first intersecting angle of other than 180°;

wherein the second and third perimeter segments intersect one another at a second corner, forming a second intersecting angle of other than 180°;

wherein the first perimeter segment includes a first ~~non-linear~~ nonlinear key element;

wherein the second perimeter segment includes a second ~~non-linear~~ nonlinear key element;

wherein the third perimeter segment includes a third ~~non-linear~~ nonlinear key element; and

wherein none of the first, second, or third non-linear key elements encompass the first or second corners; and

wherein each of the first, second, and third nonlinear key elements has a shape substantially identical to the shape of a portion of an insertion opening that provides access to the solid ink feed system.

2. (Original) The ink stick of claim 1, wherein, apart from the key elements, the first, second, and third perimeter segments are substantially linear.

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3. (Cancelled)

4. (Currently Amended) An ink stick for use in a solid ink feed system of a phase change ink jet printer, wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel, the ink stick comprising:

an ink stick body having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction;

wherein the ink stick insertion perimeter includes at least three nonlinear key elements;

wherein a first of the nonlinear key elements is along a first portion of the ink stick insertion perimeter that is substantially perpendicular to the feed direction;

wherein a second of the nonlinear key elements is along a portion of the ink stick insertion perimeter that is substantially perpendicular to the feed direction; and

wherein the first and second nonlinear key elements do not intersect one another; and

wherein the first nonlinear key element has a shape substantially identical to the shape of a portion of the insertion opening.

5. (Original) The ink stick of claim 4, wherein the ink stick insertion perimeter includes at least one linear perimeter segment between the first nonlinear key element and the second nonlinear key element.

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6. (Original) The ink stick of claim 4, wherein each of the nonlinear key elements has a shape substantially identical to the shape of a portion of the insertion opening of the solid ink feed system.

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7. (Currently Amended) An ink stick for use in a solid ink feed system of a phase change ink jet printer, wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel, the ink stick comprising:

an ink stick body adapted to be inserted in the insertion direction into the feed channel, and having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction;

wherein the ink stick insertion perimeter includes two substantially parallel lateral perimeter segments;

wherein the ink stick insertion perimeter includes two substantially parallel end perimeter segments;

wherein the end perimeter segments are substantially perpendicular to the lateral perimeter segments;

wherein the ink stick insertion perimeter includes at least three nonlinear key elements;

wherein a first of the nonlinear key elements is on a first one of the lateral perimeter segments of the ink stick insertion perimeter;

wherein a second of the nonlinear key elements is a second one of the lateral perimeter segments of the ink stick insertion perimeter; and

wherein a third of the nonlinear key elements is on one of the end perimeter segments of the ink stick insertion perimeter; and

wherein the third nonlinear key element has a shape substantially identical to the shape of a portion of the insertion opening.

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8. (Original) The ink stick of claim 7, wherein:
the lateral perimeter segments are substantially linear apart from the nonlinear key elements; and
the one end perimeter segment is substantially linear apart from the nonlinear key element.

9. (Original) The ink stick of claim 7, wherein the first and third nonlinear key elements do not intersect one another.

10. (Original) The ink stick of claim 9, wherein the second and third nonlinear key elements do not intersect one another.

11. (Original) The ink stick of claim 7, additionally comprising an ink stick guide feature for guiding the ink stick in the feed direction along the feed channel.

12. (Original) The ink stick of claim 11, wherein the lateral insertion perimeter segments are substantially parallel the ink stick guide feature.

13. (Original) The ink stick of claim 7, wherein the end perimeter segments are at least partially transverse to the feed direction.

14. (Original) The ink stick of claim 13, wherein the ink stick is adapted to be inserted into the feed channel with the lateral insertion perimeter segments substantially parallel to the feed direction.

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15. (Currently Amended) An ink stick for use in a solid ink feed system of a phase change ink jet printer, wherein the ink feed system comprises a feed channel having a feed direction and an insertion opening permitting insertion of an ink stick in an insertion direction, different from the feed direction, into the feed channel, the ink stick comprising:

an ink stick body adapted to be inserted in the insertion direction into the feed channel, the ink stick body having an ink stick insertion perimeter in a plane substantially perpendicular to the insertion direction;

wherein the ink stick insertion perimeter includes two substantially parallel lateral perimeter segments;

wherein the ink stick insertion perimeter includes at least one end perimeter segment;

wherein the end perimeter segment is oriented at an angle with respect to the lateral perimeter segments;

wherein the ink stick insertion perimeter includes at least three nonlinear key elements;

wherein a first of the nonlinear key elements is on a first one of the lateral perimeter segments of the ink stick insertion perimeter;

wherein a second of the nonlinear key elements is on a second one of the lateral perimeter segments of the ink stick insertion perimeter; and

wherein a third of the nonlinear key elements is on the end perimeter segment of the ink stick insertion perimeter; and

wherein the third nonlinear key element has a shape substantially identical to the shape of a portion of the insertion opening.

16. (Original) The ink stick of claim 15, wherein as the ink stick is inserted in the insertion direction, the end perimeter segment is at least partially transverse to the feed direction.

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17. (Original) The ink stick of claim 15, wherein:
the lateral perimeter segments are substantially linear apart from
the nonlinear key elements; and
the end perimeter segment is substantially linear apart from the
nonlinear key element.

18. (Original) The ink stick of claim 15, wherein the first and
third nonlinear key elements do not intersect one another.

19. (Original) The ink stick of claim 18, wherein the second and
third nonlinear key elements do not intersect one another.

20. (Currently Amended) The ink stick of claim 15, wherein the
shapes of the first, second, and third nonlinear key elements are substantially
identical to shaped elements of the insertion opening of the insertion opening.

21. (Original) The ink stick of claim 20, wherein the ink stick
insertion perimeter shape substantially matches an insertion opening
perimeter shape.

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22. (Original) A solid ink feed system for a printer, the feed system comprising:

- a longitudinal feed channel having an insertion end and a feed direction;

- an insertion key plate having a key plate opening through it to provide access in an insertion direction to the feed channel;

- wherein the insertion direction is different from the feed direction;

- wherein the key plate opening has an insertion opening perimeter;

- wherein the insertion opening perimeter includes two lateral opening perimeter segments and a transverse opening perimeter segment;

- wherein the transverse opening perimeter segment intersects at least one of the lateral opening perimeter segments at an angle other than 180°;

- wherein the insertion opening perimeter includes a first nonlinear key element on a first one of the lateral perimeter segments of the ink stick insertion perimeter;

- wherein the insertion opening perimeter includes a second of the nonlinear key elements on a second one of the lateral perimeter segments of the ink stick insertion perimeter; and

- wherein the insertion opening perimeter includes a third nonlinear key element on the transverse perimeter segment of the ink stick insertion perimeter.

23. (Original) The solid ink feed system of claim 22, wherein:

- the lateral opening perimeter segments are substantially parallel one another; and

- the transverse opening perimeter segment is substantially perpendicular to the lateral opening perimeter segments.

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24. (Original) The solid ink feed system of claim 23, wherein:
the insertion opening perimeter includes a second transverse
perimeter segment;

the second transverse perimeter segment is substantially parallel
to the first transverse perimeter segment; and

the insertion opening perimeter includes a fourth nonlinear key
element on the second transverse perimeter segment.

25. (Original) The solid ink feed system of claim 22, wherein:
the lateral perimeter segments are substantially linear apart from
the nonlinear key elements; and

the transverse perimeter segment is substantially linear apart from
the nonlinear key element.

26. (Original) The solid ink feed system of claim 22, wherein the
first and third nonlinear key elements do not intersect one another.

27. (Original) The solid ink feed system of claim 26, wherein the
second and third nonlinear key elements do not intersect one another.

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28. (Original) The solid ink feed system of claim 22, additionally comprising an ink stick comprising:

an ink stick body having a perimeter shape with two lateral perimeter segments and a transverse perimeter segment;

first and second nonlinear key elements on the lateral perimeter segments correspond in shape and size to the first and second nonlinear key elements of the insertion opening perimeter; and

a third nonlinear key element on the transverse perimeter segment corresponds in shape and size to the third nonlinear key element of the insertion opening perimeter.

29. (Currently Amended) A method of inserting a solid ink stick into a feed channel of a solid ink printer, the method comprising:

providing an ink stick having an ink stick insertion perimeter;

aligning the ink stick insertion perimeter with an insertion opening of a key plate;

inserting the ink stick in an insertion direction through the insertion opening;

moving the ink stick in a feed direction in the feed channel, wherein the feed direction is different from the insertion direction;

wherein aligning the ~~inks-ink~~ stick insertion perimeter with the insertion opening comprises aligning at least three ~~non-linear~~nonlinear key element shapes of the insertion opening of the key plate; and

wherein at least one of the ~~non-linear~~nonlinear key element shapes is oriented at least partially transverse to the feed direction.

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30. (Currently Amended) The method of claim 29, wherein at least one of the ~~non-linear~~nonlinear key element shapes is oriented substantially parallel to the feed direction.